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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/864,650	05/23/2001	Ryushin Omasa	2551-84	3773
29540	7590	03/03/2004	EXAMINER	
PITNEY, HARDIN, KIPP & SZUCH LLP			LEADER, WILLIAM T	
685 THIRD AVENUE			ART UNIT	
NEW YORK, NY 10017-4024			PAPER NUMBER	
			1742	

DATE MAILED: 03/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/864,650

Applicant(s)

OMASA, RYUSHIN

Examiner

William T. Leader

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 11-13-2003.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on February 4, 2004 has been entered.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

3. Claims 1 and 3-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Omasa (6,123,815) in view of Lashmore (4,461,680) and further in view of the admitted prior art or Divan et al (5,684,683).

4. Omasa and Lashmore are applied as set forth in the previous office actions. Applicant has amended claim 1 to include the limitations of claim 2. These limitations recite that the first value of plating current is 6 to 25 times as large as the second value, and that the first time is 4 to 25 times as long as the second time. In the office action mailed on 21 May 2003, it was stated that figure 1 of Lashmore is an illustration of a pulsed current waveform. The peak current density is 25 A/dm² while the dashed line shows a base current density of 5 A/dm². Thus, in

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figure 1 Lashmore illustrates the use of a plating current with a first value which is five times larger than a second value of the same polarity. It was pointed out that the values of claim 2 fall within or overlap those disclosed in the table shown in column 7 of Lashmore. As previously indicated, it would have been obvious to have utilized pulse plating as taught by Lashmore in the vibration plating process disclosed by Omasa because deposits with improved morphology would have been formed. Since Lashmore suggests the values previously recited in claim 2 and now recited in claim 1, applicant's claims are not considered to distinguish over the prior art on this basis.

5. Applicant has further amended claim 1 to recite a list of power sources used to supply the voltage between anode and cathode. Newly presented claim 12 recites a shorter list of power sources. The admitted prior art relied on is that found on page 11, lines 7-24 of applicant's specification where it is indicated that an inverter digital control type rectifier is a commercially available product under the name Power Master produced by Chuo Seisakusho Co., Ltd., and that a high frequency control type high-speed pulse PR power source is a commercially available product under the name HiPR series produced by Chiyoda Co., Ltd.

6. The Divan et al patent is directed to a power source useful in electroplating processes (column 2, lines 36-38). The power source is of a switching regulator type with transistor switches as recited in claims 1 and 12. See, for example, figure 4.

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The power source of Divan et al addresses concerns of switching efficiency and switching device stress (column 2, lines 33-35).

7. It would have been obvious at the time the invention was made to have utilized a commercially available power source as identified by the admitted prior art, or a power source of the type disclosed by Divan, to supply pulsed current as taught by Lashmore in the vibration plating process of Omasa because such power supplies are designed to efficiently provide power to electroplating processes.
8. New claim 13 recites that the plating current is pulsed to form a rectangular wave. Figure 1 of Lashmore illustrates plating current in the form of a rectangular wave.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William T. Leader whose telephone number is 571-272-1245. The examiner can normally be reached on Mondays-Thursdays and alternate Fridays, 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King, can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.


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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

WL
William Leader
February 18, 2004

ROY KING 
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700